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CLAIMS

1. Hybrid electrical-optical cable for overhead installations, comprising three insulated phase conductors helically wound around a supporting rope, wherein said supporting rope comprises:
   - at least one optical fibre element;
   - a tubular structure containing said at least one optical fibre element, said tubular structure being made from a material having a high mechanical modulus to resist to transverse compression;
   - a supporting structure resistant to longitudinal tension placed externally to said tubular structure.

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2. Cable according to claim 1, wherein the material of said tubular structure ~~is~~ selected from the group comprising: ~~metals,~~ metal alloys, high-modulus ~~polymers.~~

3. Cable according to claim 2, wherein said tubular structure is made from aluminium or stainless steel.

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4. Cable according to claim 2, wherein said high-modulus polymers ~~comprise~~ polypropylene, modified ~~polypropylene,~~ polybutylene terephthalate, polyether ~~imides and~~ polyether sulphones.

5. Cable according to claim 1, wherein said tubular structure is made from an expanded polymer.

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6. Cable according to claim 5, wherein said expanded polymer ~~is selected from olefin polymers~~ or copolymers.

7. Cable according to claim 6, wherein said expanded polymer comprises polypropylene.

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8. Cable according to anyone of the preceding claims, wherein the ratio between the diameter of said supporting rope and the diameter of each insulated conductor is predetermined ~~so as~~ to make said rope extractable from said ~~helically~~ wound insulated conductors.

9. Cable according to claim 8, wherein said ratio is greater than 0.3.

10. Cable according to claim 9, wherein said ratio is from 0.4 to 1.5.

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11. Cable according to anyone of the preceding claims, ~~wherein the~~ insulated conductors are wound around said supporting rope with a predetermined pitch ~~so as to~~ make the cable self-sustaining.

12. Cable according to claim 11, wherein said pitch is from 10 to 50 times the diameter of each insulated conductor.

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13. Cable according to anyone of the preceding claims, wherein the supporting structure comprises ~~an armour~~ comprising one or more layers of metal wires

~~helically stranded around said tubular structure.~~

14. Cable according to claim 13, wherein said metal wires are made from steel.
15. Cable according to claim 14, wherein said metal wires are made from aluminium-coated or zinc-plated steel.
16. Cable according to claim 13, wherein said metal wires are made from an aluminium alloy.
17. Cable according to anyone of the preceding claims, wherein said supporting structure is coated by an electrically insulating layer.
18. Cable according to anyone of the preceding claims, wherein said optical fibre element comprises a central reinforcing element around which one or more tubular elements, containing one or more optical fibres immersed in a buffering filler, are disposed.
19. Cable according to anyone of claims 1 to 17, wherein said optical fibre element comprises a central reinforcing element around which is disposed a grooved core in which are formed externally one or more grooves which extend longitudinally along the outer surface of said core, said grooves being filled with a buffering filler in which one or more optical fibres are housed.
20. Cable according to any one of claims 1 to 17, wherein said optical fibre element comprises a tubular element containing one or more optical fibres immersed in a buffering filler.
21. Optical fibre element comprising at least one optical fibre coated by at least a containing layer, said optical fibre element being fitted in a tubular structure made from an expanded polymeric material.
22. Optical fibre element according to claim 21, characterized in that said polymeric material is selected from olefin polymers or copolymers.
23. Optical fibre element according to claim 22, characterized in that said polymeric material comprises polypropylene.
24. Optical fibre element according to anyone of the claims from 21 to 23, characterized in that said polymeric material has a degree of expansion from 20% to 3000%.
25. Optical fibre element according to claim 24, characterized in that said polymeric material has a degree of expansion from 30% to 500%.
26. Optical fibre element according to anyone of the claims from 21 to 25, wherein before expansion said polymeric material has a flexural modulus at room temperature between 200 and 2000 MPa.
27. Optical fibre element according to claim 26, wherein said flexural modulus is between 400 and 2000 MPa.
28. Overhead system for electrical power distribution and for telecommunications,

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comprising a cable comprising three insulated phase conductors wound around a supporting rope, said cable being fixed between sustaining structures by mooring means operating on said supporting rope, characterized in that said supporting rope comprises at least one optical fibre element fitted in a tubular structure resisting to transverse compression.

29. Method for suspending a hybrid electrical-optical cable to an overhead line, said cable comprising:

- three insulated phase conductors helically wound around a supporting rope,
- a tubular structure made of a high mechanical modulus material suitable for containing at least one optical element, and
- a supporting structure placed externally to said tubular structure,

wherein said method comprises:

- pushing at least one of the three insulated conductors so as to make the supporting rope accessible from the outside;
- hooking the supporting rope by a hooking means;
- extracting the supporting rope by the hooking means from the wound insulated conductors for a predetermined length;
- clamping the extracted lenght of the supporting rope by a mooring means;
- releasing the supporting rope from the hooking means;
- suspending the cable to sustaining structures of the overhead line by the mooring means.